

120.800: LICENSING AND OPERATIONAL REQUIREMENTS FOR LOW-LEVEL RADIOACTIVE
WASTE FACILITIES

120.801: Purpose and Scope

(A) 105 CMR 120.800 establishes procedures, performance objectives, criteria, terms and conditions governing the issuance of licenses for the treatment, storage or disposal of low-level radioactive wastes received from other persons, as well as the development, operation, closure, post-closure observation and maintenance, and institutional control of a low-level radioactive waste treatment, storage or disposal facility. The requirements of 105 CMR 120.800 are in addition to, and not in substitution for, other applicable requirements of 105 CMR 120.000.

(B) 105 CMR 120.800 is applicable to any low-level radioactive waste facility for treatment, storage, or disposal of all classes of waste, which are not exempt from regulation pursuant to 105 CMR 120.200 as well as any wastes that the Board has required to be treated, stored or disposed of at a low-level radioactive waste facility.

(C) 105 CMR 120.800 is applicable to any method of treatment, storage or disposal except shallow land burial, as defined in 105 CMR 120.803. Shallow land burial is prohibited.

(D) Class A, B, C, as defined in 105 CMR 120.200, and mixed waste may be accepted for storage, treatment or disposal at a facility, if the Board so determines. Waste received at a facility shall be handled in accordance with the operational requirements of 105 CMR 120.800.

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(E) Any facility licensed pursuant to 105 CMR 120.800 may also accept NARM waste if the Board so determines. The limits of the quantities and concentrations of such NARM waste that may be accepted shall be specified as part of the waste acceptance criteria to be determined by the Board.

(F) No waste shall be acceptable for storage, treatment or disposal at a facility if either the Operator or the Department has reason to believe that the waste, as originally generated, was not radioactive. Acceptance of such waste shall be subject to penalty.

(G) No waste shall be accepted from an electric-power-generating facility if such waste requires regulations more stringent than the most stringent management required for any waste that may be accepted at the facility from another generator.

(H) In addition to the requirements of 105 CMR 120.800 all facility operations are subject to the requirements of 105 CMR 120.001, 120.100, 120.200 and 120.750. If a conflict in 105 CMR 120.000 exists, the more stringent provision shall apply.

(I) 105 CMR 120.800 does not authorize the treatment, storage or disposal of byproduct material as defined in 105 CMR 120.005: *Byproduct Material* in quantities greater than 10,000 kilograms containing more than five millicuries of radium-226. Nor do they apply to the disposal of radioactive material as provided for in 105 CMR 120.200.

120.802: Regulatory Authority

The authority for the Department of Public Health to promulgate 105 CMR 120.800 is found in: M.G.L. c. 111, §§ 3, 5M, 5N, 5O and 5P; M.G.L. c. 111H, §§ 1, 7, 8, 11, 13, 16 and 31.

120.803: Definitions

As used in 105 CMR 120.800 the following definitions apply:

Accident means any event arising from the storage, treatment, recycling or disposal of waste that causes a discharge or dispersal of waste or elements contained in the waste from its intended place of confinement.

Active Maintenance means any significant activity needed during the period of institutional control to maintain a reasonable assurance that the performance objectives in 105 CMR 120.811 and 120.812 are met. The term includes major remedial action such as replacement of disposal unit barrier. Active maintenance does not include custodial activities such as repair of fencing, repair or replacement of monitoring equipment, revegetation, minor additions to soil cover, minor repair of disposal unit barriers, and general disposal site upkeep such as mowing grass.

Adverse Effect means an injurious impact which is significant in relation to the public health, safety, or environmental interest being protected.

Affected Community means a community, other than a site community, which is identified in an environmental impact report prepared pursuant to M.G.L. c. 111H, § 30, and can be expected to experience significant impacts as a result of the location, development, operation, closure, post-closure observation and maintenance or institutional control of a facility.

ALARA [acronym for "as low as reasonably achievable"] means making every reasonable effort to maintain exposures to radiation as far below the dose limits in 105 CMR 120.200 as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest.

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Board means the Low-Level Radioactive Waste Management Board established in M.G.L. c. 111H, § 2.

Buffer Zone means a parcel of land which is an integral part of a facility that is controlled by the licensee and acts as a surrounding boundary to the facility.

Chelating Agent means certain organic compounds capable of forming (multiple) coordinate bonds with metals through two or more atoms of the organic compound, typically resulting in enhanced thermodynamic stability in solution and greatly altered behavior of the metal ions. Examples include amine polycarboxylic acids (*e.g.*, EDTA, DTPA), and polycarboxylic acids (*e.g.*, citric acid, carbolic acid, and gluconic acid).

Chief Executive Officer means the city manager in any city having a city manager, the mayor in any other city, the town manager in any town having a town manager, the chairman of the Board of Selectmen in any other town.

Closure means the permanent termination of low-level radioactive waste acceptance at a facility, including closure prior to the scheduled closing date, and the implementation of a closure plan.

Closure Plan means the plan, required as a condition of a facility license, prepared pursuant to regulations adopted under M.G.L. c. 111H, § 16, to assure safe facility closure after operation.

Commencement of Construction means initiation of site alteration or physical on-site construction activities. The term does not mean site exploration, necessary roads for site exploration, borings to determine foundation conditions, or other preconstruction monitoring or testing to establish background information related to the suitability of the site or the protection of environmental values.

Community means a city or town of the Commonwealth.

Community Supervisory Committee means a committee, established pursuant to M.G.L. c. 111H, § 21, to facilitate the participation of a community, in which a candidate site is located, in the activities established by M.G.L. c. 111H.

Comprehensive Operating Contract means a contract entered into by an Operator and the Board pursuant to M.G.L. c. 111H, § 33.

Container means the primary vessel, exclusive of other reusable shielding or other packaging materials, in which waste is placed and received for treatment, storage or disposal; or the vessel into which waste is repackaged for storage or disposal and potential retrieval.

Days means calendar days; provided that in computing time periods such periods shall exclude the day of the event which starts the period running, and further provided that if the last day of a period falls on a Sunday, legal holiday or declared state of emergency day, such period shall be extended to the close of business on the next business day.

Department means Department of Public Health.

Department Environmental Monitoring Program means a monitoring program established by the Department, after consultation with the department of environmental protection and the board of health of each site community, for the purpose of collecting and analyzing environmental data prior to construction and throughout the construction, operation, closure, post-closure observation and maintenance and institutional control of a facility.

Detailed Site Characterization means the on-site investigatory and analytical step of site selection established in M.G.L. c. 111H, § 23 and conducted prior to the selection of any superior site.

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Development means all activities undertaken with respect to a low-level radioactive waste facility during the period commencing with the selection of any superior site pursuant to M.G.L. c. 111H, § 23 and continuing until the commencement of facility operation pursuant to M.G.L. c. 111H, § 39.

Disposal means the isolation of low-level radioactive waste from the biosphere inhabited by human beings and their food chains.

Disposal Unit means a discrete portion of a facility into which waste is emplaced for disposal.

Dose Modeling Program means a computational program for converting measured or expected radioactivity to dose equivalent for the relevant critical organ(s) which employs a formula selected by the facility operator and approved by the Department.

Emplacement of Waste means the placement of waste into a disposal unit for disposal.

Engineered Barrier means a manmade structure or device that is intended to improve a facility's ability to meet the performance objectives set forth in 105 CMR 120.811 through 120.814.

Facility means a parcel of land, together with the structures, equipment and improvements thereon or appurtenant thereto, which, pursuant to M.G.L. c. 111H, is being developed, is used, or has been used for the treatment, storage or disposal of low-level radioactive waste; but does not include any property used for temporary storage of low-level radioactive waste in sealed containers by a broker.

Facility License means a license to operate a facility issued by the Department pursuant to M.G.L. c. 111H, § 31.

Generator means a person, including a broker, who produces low-level radioactive waste.

Ground Water means water below the land surface in a saturated zone, including perched ground water.

Inadvertent Intruder means a person who, without regulatory authorization, enters upon the site of a facility after closure to engage in normal activities.

Institutional Control means the continued observation, monitoring and care of a facility following transfer of the facility license from the Operator to the Board.

Institutional Control Account means an account within the Low-Level Radioactive Waste Trust Fund established in M.G.L. c. 111H, § 41 for the purpose of paying institutional control costs pursuant to M.G.L. c. 111H, §§ 9 and 47.

Intruder Barrier means a sufficient layer of material surrounding waste that inhibits contact with the waste and helps to ensure that radiation exposures to an inadvertent intruder will meet the performance objectives set forth in 105 CMR 120.800, or engineered structures that provide equivalent protection to the inadvertent intruder.

Low-level Radioactive Waste means radioactive material that:

- (1) is neither high-level waste, nor spent nuclear fuel, nor by-product material as defined in Section 11(e)(2) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. §2014(e); and
- (2) is classified by the Federal Government as low-level radioactive waste, but not including waste which remains a Federal responsibility, as designated in Section 3(b) of the Low-Level Radioactive Waste Policy Act, as amended, 42 U.S.C. §2021c(b), as in effect as of December 8, 1987.

Low-level Radioactive Waste Trust Fund means a trust fund established pursuant to M.G.L. c. 10, § 35H which shall consist of surcharges collected from users of the low-level radioactive waste facility in an amount determined by the board on an annual basis, which shall be used to meet the obligations set forth in M.G.L. c. 111H, §§ 9 and 47.

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Manifest means a detailed record of the characteristics and quantities of packaged waste as presented for transportation, treatment, storage, or disposal which usually accompanies waste transfers for these purposes.

Mass Wasting means the movement of rock or soil material under the influence of gravity either as the movement of the product of weathering down a slope or as mass movement of rock or soil along joint planes or bedding planes. Mass wasting includes but is not limited to creep, mud flows, earth flow, soil flow, rock avalanche, landslide, landslip and slumping.

Mixed Waste means low-level radioactive waste containing material that either:

- (1) is listed in 310 CMR 30.131 through 30.136; or
- (2) causes the waste to exhibit any of the characteristics identified in 310 CMR 30.120.

Monitoring means observing and making measurements to provide data on a facility, its site, its surrounding environment, and its health safety and environmental impacts.

NARM means any naturally occurring or accelerator-produced radioactive material as defined in 105 CMR 120.001. It does not include byproduct, source, or special nuclear material.

Neighboring Community means a community, other than a site community, which, according to the most recent federal census, has at least 20% of its population residing within three miles of any superior site.

Operation means the control, supervision or implementation of the actual physical activities involved in the acceptance, storage, treatment, disposal or monitoring of low-level radioactive waste at a facility and the maintenance of the facility and any other responsibilities of the operation pertaining to the facility.

Operator means a person designated in accordance with the procedures established in M.G.L. c. 111H, §§ 22 and 27 to develop and operate a low-level radioactive waste facility.

Operator Environmental Monitoring Program means a monitoring program conducted by the Operator for the purpose of collecting and analyzing environmental data during the preoperational, operational, closure, post-closure observation and maintenance, and institutional control stages of a facility.

Person means any agency or political subdivision of the federal government or the commonwealth or of any state, any public or private corporation or authority, individual, firm, joint stock company, partnership, association, trust, estate, institution or other entity, and any officer, employee or agent of such person, and any group of such persons.

Post-closure Observation and Maintenance means the active monitoring and maintenance of a facility which has been closed in preparation for transfer of the facility's license from the Operator to the Board.

Public Interest means the common welfare, convenience, benefit and necessity of the people of the Commonwealth, including public health, safety and the environment.

Public Meeting means a public hearing, satisfying the requirements of M.G.L. c. 30A, § 2, in which an agency presents information, responds to inquiries and hears testimony of interested persons.

Radioactivity means the transformation of unstable atomic nuclei with the emission of radiation.

Radionuclide means an isotope that eventually undergoes spontaneous disintegration, with the emission of radiation.

Radioactive Material means any solid, liquid, or gas which emits radiation spontaneously.

Retrieval means the recovery of waste in an intact container.

Retrievability means the ability to recover waste in an intact container without substantial destruction of the engineered barriers surrounding the waste containers.

Shallow Land Burial means a land disposal method that relies on the site's natural characteristics as the primary barrier for isolation of the waste.

Site means a parcel of land which, pursuant to M.G.L. c. 111, §§ 3, 5M, 5N, 5O, and 5P is being considered, developed or used or has been used as a location for a facility.

Site Community means the community in which is located all or any part of any superior site.

Source Minimization means minimizing the volume of radioactivity of low-level radioactive waste prior to its generation by such methods as:

- (1) avoiding unnecessary contamination of items during the use of radioactive materials;
- (2) carefully segregating radioactive waste from non-radioactive trash; or
- (3) substituting non-radioactive isotopes or radioisotopes with shorter half-lives where practicable.

Stability means structural stability.

Storage means the holding of low-level radioactive waste for treatment or disposal.

Subsidence means the process by which the earth's surface sinks, either rapidly or slowly, with little or no horizontal motion.

Superior Site means any site selected by the Board, after detailed site characterization, pursuant to M.G.L. c. 111H, § 23.

Surveillance means observation of a facility for purposes of visual detection of the need for maintenance or custodial care, evidence of intrusion, or compliance with other license or regulatory requirements.

Temporary Closure means the nonpermanent termination of low-level waste acceptance at a facility prior to its scheduled closing date.

Treatment means any method, technique, or process including source minimization, volume minimization, and storage for decay, designed to change the physical, radioactive, chemical, or biological characteristics or composition of low-level radioactive waste in order to render such waste safer for management, amenable for recovery, convertible to another usable material or reduced in volume.

Violation means any act or failure to act which constitutes or results in one or more of the following:

- (1) engaging in any business or other activity without a license or approval whenever engaging in such business or activity requires such license or approval.
- (2) engaging in any activity prohibited by, or not in compliance with, any statute, by-law, ordinance or regulation.
- (3) not fully doing, or not doing in timely fashion, anything required by any statute, by-law, ordinance or regulation.

Volume Minimization means treatment of low-level radioactive waste after its generation in order to minimize the physical dimensions of the waste and the space required for disposal.

Waste means low-level radioactive waste.

Waste Form means those physical and chemical characteristics of waste of primary importance in influencing its stability in a disposal environment.

Waste Management Area means that portion of a facility where low-level radioactive waste has been, is being or will be treated, stored or disposed of.

120.810: General Requirements

(A) No person may treat, store or dispose of waste received from other persons, unless authorized by a license issued by the Department pursuant to 105 CMR 120.800 and 120.100.

(B) No license shall be issued to operate a disposal facility which does not permit monitoring and retrieval of the waste.

(C) In order to obtain a facility license pursuant to 105 CMR 120.800, an applicant shall provide full documentary evidence of having been designated an Operator, and shall demonstrate that the facility site has been selected and the facility is designed and will be constructed, operated, closed and controlled after closure so that the environmental and human exposure performance objectives set forth in 105 CMR 120.811 through 120.814 are satisfied.

(D) Any facility so licensed shall be constructed, operated, closed and controlled after closure so that environmental and human exposure performance objectives set forth in 105 CMR 120.811 through 120.814 are satisfied.

120.811: Protection of the General Population from Releases of Radioactivity

Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals shall not result in an annual dose exceeding an equivalent of 25 millirems (0.25 mSv) to the whole body, 75 millirems (0.75 mSv) to the thyroid, and 25 millirems (0.25 mSv) to any other organ of any member of the public. The Operator shall assume initiatives which are necessary to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

120.812: Protection of Individuals from Inadvertent Intrusion

Design, operation, and closure of a facility shall ensure protection of any individual inadvertently intruding into the facility and occupying the site or contacting the waste at any time after active institutional controls over the facility are removed.

120.813: Protection of Individuals During Operations

Operations at a facility shall be conducted in compliance with the standards for radiation protection set out in 105 CMR 120.200, except for releases of radioactivity in effluents from the facility, which shall be governed by 105 CMR 120.811. The Operator shall assume initiatives which are necessary to maintain radiation exposures as low as is reasonably achievable.

120.814: Stability of the Facility After Closure

The facility shall be sited, designed, used, operated, and closed to achieve long-term stability of the facility and to eliminate, to the extent practicable, the need for long-term active maintenance of the facility following closure so that only surveillance, monitoring, or minor custodial care are required.

120.815: Facility Design

(A) Any disposal method utilized at a facility shall permit retrieval and monitoring of the waste.

(B) Retrieval of waste from disposal units must be feasible through the institutional control period without adversely affecting the ability of the facility to meet the performance objectives set forth in 105 CMR 120.811 through 120.814.

(C) The Operator shall provide extensive security for the facility during the development, operation, closure, post-closure observation and maintenance, and institutional control of the facility for a period of time that ensures the health and safety of the general public and the environment. The Operator shall allow site community participation in this security planning process.

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(D) Any facility accepting waste for disposal shall, to the extent practicable, be designed, operated, closed and controlled after closure so as to maintain the gross physical properties and identity of such waste and containers for a minimum of 100 years for Class A waste, 300 years for Class B waste, and 500 years for Class C waste.

(E) Any disposal facility shall have its engineered structures designed with the goal to totally hold their waste content for the period of the hazardous life of the radioactive waste (zero release design objective).

120.816: Facility Institutional Control

(A) The design of any facility accepting waste for disposal shall be based on the assumption that the period of active institutional controls shall not exceed 100 years.

(B) The actual institutional control period shall not be less than the minimum time required for any waste present at the site to decay to the maximum concentrations above natural background levels permitted to be released into air or water in unrestricted areas under federal and state law.

120.820: License Required

(A) No person may treat, store or dispose of low-level radioactive waste received from other persons unless authorized by a license issued by the Department pursuant to 105 CMR 120.800 and 120.100.

(B) The Department shall not license any facility pursuant to 105 CMR 120.800 unless the Operator has provided a certification by the Board that the facility is proposed to be sited on a superior site selected pursuant to M.G.L. c. 111H, § 23(g). Such certification shall not be made unless the time period set forth in M.G.L. c. 111H, § 24(a) for the filing of a petition for an adjudicatory proceeding has expired without such a petition being filed or, if such petition has been filed, until the Department of Environmental Protection has issued a final decision approving the selection of the superior site pursuant to M.G.L. c. 111H, § 24(c).

(C) Except as provided in M.G.L. c. 111H, § 12(b)(10), the Department shall not issue a facility license unless the person making application for such license has provided full documentation of having been designated an Operator in accordance with the procedures established pursuant to M.G.L. c. 111H, §§ 22 and 27.

(D) The Department shall not issue such a license unless the Operator has obtained all other permits and licenses required by law in order to commence construction of a facility.

120.821: Licensing Process

The procedures for a license application shall include the following:

(A) An Operator shall file an application with the Department pursuant to 105 CMR 120.124 and obtain a license as provided in 105 CMR 120.800 before commencement of construction of the facility. Failure to comply with this requirement may be grounds for denial of a license.

(B) After an Operator files, with the Secretary of the Executive Office of Environmental Affairs (EOEA), its notification of intent to apply for a facility license, it may file a facility license application with the Department.

(C) The license application shall be determined to be complete when the Department finds that all information required by 105 CMR 120.800 has been submitted and any additional requirements of 105 CMR 120.800 have been satisfied.

(D) The Department may deny a facility license if the Operator fails or refuses to correct deficiencies in the application within 30 days after notification of such a deficiency by the Department. Such summary denial shall be accompanied by an explanation of the reasons for the denial.

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(E) The Department shall set a decision schedule, for each complete application, setting forth the date by which it intends to prepare a draft license or draft denial and to issue a final license decision. The Department shall adhere to such decision schedule unless it finds that an extension of the schedule, not to exceed 90 days, is necessary to protect public health or the environment, in which case the Department must adhere to such decision schedule as extended.

(F) The Department shall give notice of the commencement of the public comment period by mail to the Operator, the community supervisory committee of each site community and the Board, and by publication in accordance with regulations adopted pursuant to M.G.L. c. 30, § 62A (MEPA), in a daily or weekly newspaper of general circulation within each site and neighboring community and by broadcasting on radio stations serving each such community.

(G) The public comment period shall continue for 45 days after the issuance of a draft license or draft denial. The Department shall extend the public comment period if it issues a modified draft license until 45 days after the issuance of such a modified draft license.

(H) Anyone may submit comments to the Department during the comment period. The Department shall make copies of all comments received available to persons upon request.

(I) The Department shall conduct at least one public meeting on the license application and the draft license or draft denial within each site community and other public meetings in neighboring communities upon request by the Chief Executive Officer of such community.

(J) The Department shall, after action by the Secretary of the Executive Office of Environmental Affairs on a draft environmental impact report pursuant to M.G.L. c. 111H, § 30 and M.G.L. c. 30, § 62C, prepare a draft license or draft denial. A draft license shall include facility design and performance specifications and all conditions required to operate the facility.

(K) A copy of the draft license or draft denial shall be sent to the Operator, the community supervisory committee of each site community, the Board and, upon request, to other interested persons, and shall be accompanied by an explanation of the reasons therefor and a description of the procedures to be followed in reaching a final license decision. Such description shall include the date on which the public comment period is to end; the dates and locations of scheduled public meetings on the draft license or draft denial, the procedures to be followed by persons wishing to participate in the process leading to the final license decision, and the name, address and telephone number of the person within the Department to contact for additional information.

(L) The Department shall send a copy of the final facility license decision to the Operator, the community supervisory committee of each site community, the Board, any person who submitted written comments during the public comment period and, upon request, to other interested persons. Such final decision shall be accompanied by a summary response to comments received during the public comment period and an explanation of the reasons for any difference between the draft license or denial and the final license decision.

120.822: Content of Application

(A) In addition to the requirements set forth in 105 CMR 120.100, an application for a facility license shall include the general information, specific technical information, institutional information, financial information, and the results of preoperational environmental monitoring set forth in 105 CMR 120.823 through 120.828.

(B) The applicant shall prepare, and submit as part of the application, a Safety Analysis Report (SAR). The Safety Analysis Report must follow the format described in the most current revision of United States Nuclear Regulatory Commission's publication, *Standard Format and Content of a License Application for a Low-Level Radioactive Waste Disposal Facility*, (NUREG-1199). The SAR must include all of the applicable information required in NUREG-1199, in addition to the information required in 105 CMR 120.823 through 120.828, and will be reviewed by the Department following the guidance contained in the most current revisions of NUREG-1200 and NUREG-1300.

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Only certain general sections of NUREG-1199, which do not specifically address disposal facilities, are of direct relevance to treatment and storage facilities.

120.823: General Information

The general information shall include each of the following:

- (A) Identity of the Operator including:
 - (1) The full name address, telephone numbers and description of the business or occupation of the Operator; and
 - (2) If the Operator is a partnership, the name and address of each partner and the principal location where the partnership does business.
 - (3) If the Operator is a corporation or an unincorporated association:
 - (a) The state where it is incorporated or organized and the principal location where it does business; and
 - (b) The names and addresses of its directors and principal officers.
 - (4) If the Operator is acting as an agent or representative of another person in filing the application, all information required under 105 CMR 120.823(A) must be supplied with respect to the other person.
- (B) Qualifications of the Operator:
 - (1) The organizational structure of the Operator, both offsite and onsite, including a description of lines of authority, key positions and assignments or responsibilities, whether in the form of administrative directives, contract provisions, or otherwise. The Operator shall, at any time during licensing, development, operation, closure, post-closure observation and maintenance or institutional control of the facility, immediately notify the Department of any significant change in its organizational structure information;
 - (2) The technical qualifications, including training and experience, of the Operator and members of the Operator's staff to engage in the proposed activities. Minimum training and experience requirements for personnel filling key positions described in 105 CMR 120.823(B)(1) must be provided. The Operator shall, at any time during licensing, development, operation, closure, post-closure observation and maintenance or institutional control of the facility, immediately notify the Department of any significant change in its technical qualifications information;
 - (3) A description of the Operator's personnel training program; and,
 - (4) A plan to maintain an adequate complement of trained personnel to carry out waste receipt, handling, treatment, storage, and disposal operations in a safe manner.
- (C) A description of:
 - (1) The location of the proposed facility;
 - (2) The general character of the proposed activities;
 - (3) The types and quantities of waste to be treated, stored, and/or disposed of; and
 - (4) The proposed facility and equipment.
- (D) Proposed schedules for construction, receipt of waste, treatment and storage of waste, and first emplacement of waste at the proposed facility.

120.824: Specific Technical Information

The specific technical information shall include the following information needed for demonstration that the performance objectives and applicable technical requirements of 105 CMR 120.800 will be met:

- (A) A description of the natural characteristics of the site and demographic characteristics of the surrounding areas and populations as determined by site selection and characterization activities. The description shall include geologic, geochemical, geotechnical, hydrologic, cultural, scenic, historical, ecologic, archaeologic, meteorologic, climatologic, and biotic features of the facility and vicinity.

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(B) An identification of any known natural resources, the exploitation of which could result in inadvertent intrusion upon the site.

(C) A description of the design features of the facility, its waste management areas and any disposal units including, in particular, design features or other provisions for normal and abnormal or accident conditions. The description shall include those design features related to the following:

- (1) Prevention or minimization of infiltration by water, plants, and animals;
- (2) Water management features for water that may enter any disposal units or other waste management areas;
- (3) Integrity and stability of engineered barriers;
- (4) Stability of intruder barriers surrounding wastes;
- (5) Facility drainage;
- (6) Adequacy of the size of the buffer zone;
- (7) Monitoring;
- (8) Retrievalability;
- (9) Occupational exposures;
- (10) Facility closure;
- (11) Minimization to the extent practicable of long term active maintenance; and,
- (12) Protection from inadvertent intrusion.

(D) A description of the relationship of the principal design features of the facility to the performance objectives set forth in 105 CMR 120.811 through 120.814, and to natural site characteristics and natural events or phenomena associated with the site.

(E) A description of codes and standards which the Operator has applied to the design and which will apply to construction of waste management areas and any disposal units. Such standards shall meet local, state and national building code standards.

(F) A description of the construction and operation of the facility, its waste management areas and any disposal units. The description shall include as a minimum the following:

- (1) Methods of constructing any disposal units;
- (2) Types of intruder barriers and onsite traffic controls;
- (3) Methods and areas of waste treatment and storage;
- (4) Drainage systems to control surface water or groundwater access to the wastes;
- (5) Operator's environmental monitoring and surveillance;
- (6) Receipt and handling of waste and inspection of waste and package integrity;
- (7) Procedures for and areas of waste segregation;
- (8) Any waste emplacement;
- (9) Worker monitoring and surveillance;
- (10) Survey control program; and,
- (11) Methods to be employed in the handling and any disposal of wastes containing chelating agents or other non-radiological substances that might affect meeting the performance objectives set forth in 105 CMR 120.811 through 120.814.

(G) A description of the kind, amount, classification and specifications of waste proposed to be treated, stored or disposed of at the facility and a description of total facility design capacity and facility expected operating life.

(H) A description of the quality assurance program for the determination of natural site characteristics and for quality assurance during the design, construction, operation, and closure of the facility including, in particular, the receipt, handling, and emplacement of waste. Audits and managerial controls must be included.

(I) A description of the radiation safety program for control of radioactive effluents to ensure compliance with the performance objective set forth in 105 CMR 120.811; for control of occupational radiation exposure to ensure compliance with the requirements of 105 CMR 120.200 and for control of contamination of personnel, vehicles, equipment, buildings, and the facility. Both routine operations and accidents shall be addressed. The program description must include procedures, instrumentation, facilities, and equipment.

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- (J) A description of the Operator's environmental monitoring and the Operator's plans for taking remedial measures when necessary.
- (K) A description of the administrative procedures that the Operator will apply to control activities at the facility.
- (L) A description of the plan for facility closure and post closure observation and maintenance including those design features intended to facilitate facility closure and to minimize the need for long term active maintenance. Such plan shall include:
 - (1) A description of the relationship between individual waste containers (or disposal units, in the case of a disposal facility) and final closure;
 - (2) Procedures to be implemented to ensure that any disposal units at a facility will not be adversely affected by closure.
- (M) A description of the waste containment within any disposal units as it applies to the design objective to provide total containment of wastes within disposal units for 100 years for Class A waste, 300 years for Class B waste, and 500 years for Class C waste.
- (N) A description of the circumstances under which retrieval of waste would be necessary or desirable and the plans and the procedures to be used to effect retrieval. The description shall include an analysis of the impacts of waste retrieval on public and worker health and safety and the environment.
- (O) A description of the waste minimization program that would be instituted to reduce the volume and activity of low-level radioactive waste generated at the facility pursuant to 105 CMR 120.890.

120.825: Technical Analyses

- (A) The specific technical information shall also include the following analyses needed to demonstrate that the performance objectives set forth in 105 CMR 120.811 through 120.814 will be met:
 - (1) Pathways analyzed in demonstrating protection of the general population from releases of radioactivity shall include air, soil, groundwater, surface water, plants and animals. The analyses shall clearly identify and differentiate between the roles performed by the natural site characteristics and facility design features in isolating and segregating the wastes. The analyses shall demonstrate that there is assurance that the exposures to humans from the release of radioactivity will not exceed the limits set forth in 105 CMR 120.811.
 - (2) Analyses of the protection of individuals from inadvertent intrusion shall demonstrate that waste classification and segregation requirements will be met and that intruder barriers will be provided.
 - (3) Analyses of the protection of individuals during operations shall include assessments or expected exposures due to routine operations and potential accidents during handling, treatment, storage, and disposal of waste. The analyses shall demonstrate that exposures will be controlled to meet the requirements of 105 CMR 120.200.
 - (4) Analyses of the long term stability of the facility and the need for active long-term maintenance after closure shall be based upon analyses of active natural processes (such as, in the case of a disposal facility, erosion, mass wasting, slope failure, settlement of wastes, infiltration through adjacent soils, and surface drainage of the facility). The analyses shall demonstrate that there will not be a need for long term active maintenance of the facility following closure.
- (B) The Operator shall, at any time during licensing, development, operation, closure, post-closure observation and maintenance or institutional control of the facility, immediately notify the Department of any significant change in its technical analysis required to be submitted pursuant to 105 CMR 120.800. Such notification shall include a substitute technical analysis, satisfying the requirements of the Section and demonstrating that the performance objectives set forth in 105 CMR 120.811 through 120.814 will be met by the facility.

120.826: Institutional Information

The institutional information submitted by the Operator shall include:

(A) Certifications by the Board that the facility is proposed to be sited on land owned by the Commonwealth in fee simple absolute and that the Board is prepared to accept transfer of the license when the provisions of 105 CMR 120.870 are met and to assume responsibility for institutional control of the facility after closure and post-closure observation and maintenance are completed.

(B) All material submitted to, or substantially relied upon by the Board in support of its certification of the operator pursuant to M.G.L. c. 111H, § 22(c).

120.827: Financial Information

(A) The Operator shall show that it either possesses the necessary funds or has reasonable assurance of obtaining the necessary funds, or a combination of the two, to cover the estimated costs of conducting all licensed activities over the planned operating life of the project, including costs of facility development, construction, operation, and closure. The Operator shall demonstrate that it is in compliance with all the financial criteria for operator certification set forth in 345 CMR 3.12: *Financial Criteria for Operator Certification*.

(B) The Operator shall provide the Department with a certification issued by the Board that the amount expected to be contained in the institutional control account of the Low-Level Radioactive Waste Trust Fund will be adequate to pay the costs of institutional control of the facility pursuant to M.G.L. c. 111H, §§ 9 and 47. At any time that the Board determines that changes in inflation, technology of facility operations or other changes have significantly altered the factual basis for the certification issued pursuant to 105 CMR 120.827(B), it shall immediately notify the Department. Such notification shall include any proposal for changes in the schedule of surcharges for the Low-Level Radioactive Waste Trust Fund, adopted pursuant to M.G.L. c. 111H, § 38(c), deemed necessary by the Board.

120.828: Preoperational Environmental Monitoring

(A) At the time a license application is submitted, the Operator shall present the results of preoperational environmental monitoring conducted to provide basic environmental data on the facility and site characteristics. The preoperational environmental monitoring program shall conform with that described in NUREG-1388 to the extent applicable to the type of facility, M.G.L. c. 111H, and the requirements of 105 CMR 120.831. The Operator shall include information about the ecology, meteorology, climate, hydrology, geology including geophysics and geotechnical engineering, geochemistry, seismology, and radiologic characteristics of the site and all other relevant information required in 105 CMR 120.824, 120.825 and 120.831 necessary to demonstrate the suitability of the site for the intended use.

(B) For those characteristics that are subject to seasonal variation, any data collected by the Operator, together with data from the detailed site characterization conducted by the Board, shall cover a period of at least 12 consecutive months.

(C) The Operator shall continue the preoperational environmental monitoring program through the Department's license review period.

120.829: Standards for Issuance of a License

A facility license may be issued by the Department, following action of the Secretary of Environmental Affairs on a final environmental impact report pursuant to M.G.L. c. 111H, § 30 and M.G.L. c. 30, § 62C, if it finds that:

(A) The issuance of the license will not constitute an unreasonable risk to the health and safety of the public;

120.829: continued

- (B) The Operator is qualified by reason of training and experience to carry out the proposed treatment, storage, or disposal operations in a manner that protects health and minimizes danger to life or property;
- (C) The Operator's proposed facility design, environmental monitoring plan, equipment, operations, procedures, facility closure, post-closure observation and maintenance and institutional control are adequate to protect the public health and safety and demonstrate that the performance objectives set forth in 105 CMR 120.811 through 120.814 will be satisfied;
- (D) The Operator has demonstrated that the applicable technical requirements of 105 CMR 120.800 will be met;
- (E) The Operator's proposal for institutional control demonstrates that such control will be provided for a length of time not less than the minimum time required for any waste present at the site to decay to the maximum concentrations above natural background levels permitted to be released into air or water in unrestricted areas under federal and state law, and that the institutional control meets the requirements of 105 CMR 120.871;
- (F) The financial and surety arrangements comply with all the financial criteria for operator certification set forth in 345 CMR 3.12; and
- (G) The Operator has provided a written statement indicating that the Operator's proposed facility design, equipment, operations procedures, closure, post-closure observation and maintenance, and institutional control meet all applicable environmental, public health, labor, occupational health and safety standards and regulations.

120.830: Conditions of Licenses

- (A) Each person licensed by the Department pursuant to 105 CMR 120.800 shall confine possession and use of materials to the locations and purposes authorized in the license.
- (B) The Operator shall not treat, store or dispose of waste until the Operator has received written notification from the Department that the Department has inspected the facility and has found it to be in conformance with the design and construction described in the application for a license.
- (C) The Operator shall be subject to the provisions of M.G.L. c. 111H, and to all rules, regulations, and orders of the Department. The terms and conditions of the license are subject to amendment, revision, or modification, by reason of amendments to, or by reason of rules, regulations, and orders issued in accordance with the terms of M.G.L. c. 111H.
- (D) The Department may incorporate in any license at the time of issuance, or thereafter, by appropriate rule, regulation or order, additional requirements and conditions with respect to the Operator's receipt, possession, treatment, storage, or disposal of waste as it deems appropriate or necessary in order to protect public health, safety or environment.
- (E) The Department may require tests, reports and the keeping of records, and provide for such inspections of activities under the license that may be necessary or appropriate to effectuate the purposes of M.G.L. c. 111H and 105 CMR 120.800.
- (F) The Department may issue orders to assure compliance with 105 CMR 120.800, or to cease activity in violation of 105 CMR 120.800; it may revoke, suspend or modify licenses and impose a civil penalty or have the Attorney General bring an action to restrain, prevent or enjoin any conduct prohibited by 105 CMR 120.800 or compel action ordered by the Department as shall be stated in 105 CMR 120.016: *Enforcement*.

120.830: continued

(G) Each Operator shall notify the Department in writing immediately following the filing of a voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 (Bankruptcy) of the United States Code by or against:

- (1) The Operator;
- (2) An entity (as that term is defined in 11 U.S.C. §101(14)) controlling the Operator or listing the license of Operator as property of the estate; or,
- (3) An affiliate (as that term is defined in 11 U.S.C. §101(2)) of the license.

Such notification shall indicate the bankruptcy court in which the petition for bankruptcy was filed and the date of the filing of the petition.

(H) A license issued under 105 CMR 120.800, or any right thereunder, may not be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person, unless the Department finds, after securing full information, that the transfer is in accordance with the provisions of M.G.L. c. 111H and 105 CMR 120.800 and the Department gives its consent in writing in the form of a license amendment.

(I) The Operator shall submit written statements under oath upon request of the Department, at any time before transferring of the license, to enable the Department to determine whether the license should be modified, suspended, or revoked.

(J) The license may be transferred to the Board upon the full implementation of the facility closure plan as approved by the Department, and completion of post-closure observation and maintenance in accordance with 105 CMR 120.800.

(K) The authority to treat, store, and dispose of wastes expires on the date stated in the license. Any expiration date on a license applies only to the site operations activities and to the authority to treat, store, and dispose of waste. Failure to renew the license shall not relieve the Operator of responsibility for implementing site closure, post-closure observation and maintenance, or transfer of the license to the Board.

120.831: Environmental Monitoring

(A) The Operator must submit an environmental monitoring plan, of which the preoperational environmental monitoring required in 105 CMR 120.828 is a component, as part of the complete license application. The extent and duration of the Operator environmental monitoring program shall take into account the nature of the licensed operation. In the case of a low-level radioactive waste disposal facility, the Operator environmental monitoring program shall, at a minimum, conform to the general guidance provided in U.S. Nuclear Regulatory Commission publication, *Environmental Monitoring of Low-Level Radioactive Waste Disposal Facility*, NUREG-1388 (published in 1989).

The Operator shall submit with the license application a baseline health study of the site community and any affected community. The study shall be paid for by the Operator and conducted by the Department's Bureau of Environmental Health Assessment following the design requirements for such a study that are currently being used by the Department. A comparison health study shall be conducted every five years and paid for by the Operator.

The environmental monitoring programs for treatment and storage facilities shall be designed for the specific needs of those facilities.

(B) During facility development, construction, operation, closure, post-closure observation and maintenance, until the facility license is transferred to the Board, the Operator shall establish and conduct the Operator environmental monitoring program as required by 105 CMR 120.831 and in accordance with the environmental monitoring plan approved by the Department as a condition of the final license.

(C) Within 30 days of the issuance of a facility license, the Department shall, after consultation with the Department of Environmental Protection and the Board of Health of each site community, establish and conduct a comprehensive environmental monitoring program at the facility site which will compliment and validate the Operator environmental monitoring program.

120.831: continued

(D) The Department environmental monitoring program and the Operator environmental monitoring program shall each employ the best available monitoring technology to collect and analyze data concerning standing and running surface water and drainage; groundwater samples from offsite, site boundary and waste management area wells; soil and sedimentation samples, air samples, vegetation and wildlife samples, and direct radiation measurements offsite, at the site boundary and in the waste management area.

(E) Both the Department environmental monitoring program and the Operator environmental monitoring program shall be designed to:

- (1) Establish baseline environmental data on the site;
- (2) Provide data to allow evaluation of facility impacts on public health, safety and the environment, and evaluate the need for mitigative measures at the facility;
- (3) Provide early warning of the magnitude and extent of any migration of radionuclides and/or any hazardous chemicals;
- (4) Determine compliance with applicable regulations, with conditions of the facility license pursuant to 105 CMR 120.830, and with the terms of the comprehensive operating contract; and
- (5) Provide reliable environmental data throughout development, operation, closure, post-closure observation and maintenance and institutional control at the facility.

(F) Both the Department environmental monitoring program and the Operator environmental monitoring program shall be designed to detect:

- (1) Any seepage through engineered barriers.
- (2) The structural stability of engineered barriers.
- (3) External or internal conditions that may cause physical changes leading to enhanced water movement or compromises in stability.

(G) Both the Department environmental monitoring program and the Operator environmental monitoring program shall include:

- (1) Facility measurements.
 - (a) Soil sampling
 - (b) Pore water sampling
 - (c) Pore gas sampling
 - (d) In situ measurements
 - (e) Geophysical remote sensing
 - (f) Photogrammetric techniques
 - (g) Subsurface hydrological monitoring
 - (h) Subsurface physical monitoring
 - (i) Subsurface chemical monitoring
- (2) Measurements at a representative test area.
 - (a) Use of a surrogate facility for area testing.
 - (b) Use of replaceable monitoring and nondestructive test systems.
 - (c) Undisturbed region not directly impacted by engineered facility or facility activity (representative of natural or background conditions).

(H) Both the Department environmental monitoring program and the Operator environmental monitoring program shall include a quality assurance program utilizing the best available methods of monitoring plan formulation, data acquisition, database creation, data verification, and data validation to minimize instances of false negative measurements. Data shall be processed, synthesized and organized so as to be suitable for use to evaluate the performance of the facility's engineered barriers and to ensure the protection of the public health, safety and the environment.

(I) Both the Department environmental monitoring program and the Operator environmental monitoring program shall be upgraded to provide the maximum protection of public health, safety and the environment based on the results of the quality assurance program.

120.831: continued

(J) A copy of all Department environmental monitoring program and Operator environmental monitoring program records and analyses shall be kept at the Board field office in the site community for public review.

(K) The Department environmental monitoring program shall provide, to the maximum extent feasible, for the participation of officials and citizens of each site community and the training of such persons to facilitate their participation.

(L) The Board of Health of each site community shall be entitled to obtain portions of the samples collected pursuant to the environmental monitoring programs for independent analysis by a laboratory certified to conduct such analysis by the U.S. Environmental Protection Department.

(M) The Operator shall cooperate with the Department environmental monitoring program and shall reimburse the Department and each site community annually for the costs thereof until the facility license is transferred to the Board pursuant to 105 CMR 120.870.

(N) The Department shall:

- (1) Issue an annual report describing and evaluating the findings of the environmental monitoring program.
- (2) Hold a public meeting within 60 days of the issuance of the report for public review and comment on the report in:
 - (a) Each site community; and,
 - (b) Each affected and neighboring community, if the chief executive officer of such a community so requests.
- (3) Consider and evaluate all comments made at such public meetings or submitted in writing within 60 days of the issuance of the report.

(O) The Operator shall have plans for taking corrective measures if either the Department environmental monitoring program or the Operator environmental monitoring program detects, or indicates the threat of, migration of radionuclides or hazardous chemicals or increased on-site or off-site radiation levels which would indicate that the performance objectives set forth in 105 CMR 120.811 through 120.814 may not be met including:

- (1) A restorative and protection action plan.
- (2) A dose modeling program for site workers and the general public.
- (3) A dose modeling program in the event of an accidental release to the environment.

(P) The Department, in consultation with the Board, may issue an order to temporarily close the facility if it finds that there is a potential hazard to public health, safety or the environment which justifies such temporary closure. A facility that is temporarily closed shall remain closed as long as necessary for remedial action, and, in any event, through any period of facility clean-up and stabilization. Prior to authorizing the reopening of a temporarily closed facility, the Department shall:

- (1) Conduct a minimum of one public meeting relative to the reopening in each site community, and other public meetings in neighboring communities upon the request of the chief executive officer of such community;
- (2) Issue a summary response to all comments made at such public meetings or made in writing during the time the facility is temporarily closed, and an explanation of the reasons for authorizing the reopening.

120.832: Facility Design

(A) Facility design features shall be directed toward long-term isolation of waste and avoidance of the need for continuing active maintenance after closure.

(B) The facility design and operation shall be compatible with the facility closure and closure plan and lead to closure that ensures that the performance objectives set forth in 105 CMR 120.811 through 120.814 will be met.

120.832: continued

(C) The facility shall be designed to complement and improve, where appropriate, the ability of the facility's natural characteristics to assure that the performance objectives will be met.

(D) Engineered barriers shall be designed to minimize to the extent practicable, water infiltration, to direct percolating of surface water away from waste, and to resist degradation by surface geologic processes and biotic activity.

(E) Surface features shall direct surface water drainage away from disposal units at velocities and gradients which will not result in erosion that will require ongoing active maintenance.

(F) The facility shall be designed to minimize to the extent practicable the contact of percolating or surface water with waste.

(G) The facility design shall incorporate subsidence monitoring and minimization; long term stability of any disposal units, storage and structural components; and facility safety systems to ensure protection of facility workers, members of the general public, and the environment.

(H) The design of any disposal facility shall incorporate structural monitoring provisions for a program which allows:

- (1) Regular visual inspections of the exterior portions of any disposal units;
- (2) Remote sensing of inaccessible areas, where applicable; and,
- (3) Meters and gauges, as necessary.

(I) The Operator shall ensure that the facility design and operation plans allow for proper inspection and receipt of all incoming waste shipments and packages.

(J) The buffer zone shall not be used for receipt or storage of waste.

NOTE: Short-term and long-term performance of a disposal facility may be achieved by a combination of factors, including disposal method and engineered barriers, waste form and packaging, facility operation, institutional controls, natural site features, and waste classification and inventory limits.

120.833: Facility Construction

(A) The Operator shall present facility construction plans to be approved by the Department prior to commencement of construction.

(B) The Operator may begin construction once the Department has determined that:

- (1) The operator environmental monitoring program and Department environmental monitoring program, together with the detailed site characterization of the site, has yielded comprehensive baseline data.
- (2) All required financial assurances have been accepted.
- (3) All pre-construction conditions of the facility license have been satisfied.

(C) The Operator shall ensure that construction of the facility meets all the requirements of 105 CMR 120.800 and the license.

(D) The Board shall appoint a resident engineer who shall represent the Board daily at the site during construction of the facility and who shall, in cooperation with officials at each site community, check, inspect, and report to the Board as to events at the construction site.

(E) The Department will periodically inspect the construction process to ensure that the requirements of 105 CMR 120.800 and the license are being met.

(F) The Operator shall construct, install, and make additions and improvements to such structures and equipment as are determined by the Department to be necessary.

120.834: Operating Budget Reimbursements

Once a license has been issued, and annually thereafter until the facility license is transferred to the Board pursuant to 105 CMR 120.870, the Department shall establish a payment to be made by the Operator. This payment shall equal the Department's expected annual operating budget for the next fiscal year for its activities with respect to the facility, except that the payment shall be adjusted by the amount of any operating deficit or surplus previously incurred by the Department. The Operator shall make such payment to the Commonwealth prior to the commencement of the fiscal year.

120.840: Facility Opening

(A) Prior to the acceptance of waste at a facility, the Operator shall notify the Department and the Board that the construction of the facility is complete and in compliance with all requirements of 105 CMR 120.800 and all license conditions, and that the facility is ready to accept waste.

(B) Prior to the acceptance of waste at a facility, the Operator shall file with the Department the waste acceptance criteria, approved by the Board, that will be utilized at the facility.

(C) Upon written notification from the Department that the Operator is in compliance with all the regulations and conditions of the facility license, and upon a determination of compliance with the comprehensive operating contract by the Board, commencement of operations may begin. The Operator shall be required to begin accepting waste within 30 days after such notification.

(D) No person may ship or transport any waste to a facility without the written consent of the Operator.

120.841: Facility Operation

(A) Wastes designated as Class A pursuant to 105 CMR 120.247 shall be segregated from other wastes by emplacing them in disposal units that are sufficiently separated from disposal units for the other waste classes so that any interaction between Class A wastes and other wastes will not result in the failure to meet the performance objectives of 105 CMR 120.800. This segregation is not necessary for Class A wastes if they meet the stability requirements in 105 CMR 120.247(B).

(B) Wastes designated as Class C pursuant to 105 CMR 120.247 shall be disposed of with intruder barriers that are designed to protect against an inadvertent intrusion for at least 500 years.

(C) Waste arriving at the facility shall comply with all other pertinent Sections of 105 CMR 120.000 with regard to waste classification, waste characteristics, labeling, manifests, the waste acceptance criteria approved by the Board and any applicable provisions of the comprehensive operating contract.

(D) The Operator shall have specific procedures to ensure compliance of waste with all applicable waste acceptance criteria.

(E) The Operator of any disposal facility shall require evidence of a certificate signifying the Department's approval of the waste minimization statement or plan of a generator, pursuant to 105 CMR 120.890 as a condition of access to the facility.

(F) Any facility accepting mixed waste shall provide an equivalent level of environmental protection as that required by M.G.L. c. 21C and 310 CMR 30.000.

(G) The Operator shall provide adequate training for all site workers in the proper handling of radioactive waste to ensure radiological controls. Such training shall include, but not be limited to:

120.841: continued

- (1) Basic Radiation Principles
- (2) Basic Radiation Protection
- (3) Radiation Biology
- (4) Decontamination Methods
- (5) Personnel Safety Precautions/Work Habits
- (6) Accident Response Actions/Notifications

120.842: Receipt, Handling, and Inspection of Waste

(A) The Operator shall submit a plan for the receipt, inspection, and handling of waste entering the facility. The plan shall include, but not be limited to, the waste acceptance criteria approved by the Board.

(B) The Operator shall ensure that special inspection and receiving plans are in place in case of damaged transportation vehicles or packages, incorrect manifests or shipping documents, or non-compliance with any Section of 105 CMR 120.000.

(C) The plans and procedures for moving the waste shall be implemented and equipment shall be utilized so as to minimize contact or the possibility of contact with water.

(D) Upon arrival to the facility, all waste shall enter a waste inspection area and remain there until the Department can inspect the manifests and the integrity of the waste being received.

(E) The Department shall inspect each shipment of waste before the shipment is accepted for storage, treatment or disposal. Any shipment that is not found to be in compliance with applicable regulations, license conditions, and waste acceptance criteria shall be held in a controlled area within the facility until a representative from the generator is contacted, and the generator or its agent remedies the deficiency; the operator shall notify the board of health of each site community of any such failure of compliance.

(F) The generator shall be assessed a daily penalty until the deficiency is remedied and the shipment complies with applicable regulations, license conditions and waste acceptance criteria.

(G) After a transport vehicle is unloaded and leaves the waste management area, it shall not leave the facility until it is again inspected by the Department and decontaminated, if necessary.

(H) Once inspected, wastes accepted for disposal shall be emplaced in a manner to ensure that container integrity is maintained during emplacement, and that the minimization of void spaces between the containers permits the ability to fill the void spaces. Once inspected, wastes accepted for storage shall be placed in storage in a manner to ensure that container integrity is maintained throughout the period of storage.

(I) Void spaces between waste containers in disposal units shall be filled with material appropriate to reducing future subsidence of the disposal units.

(J) Closure measures set forth in the approved facility closure plan shall be carried out as each disposal unit is filled and sealed.

(K) Waste shall be emplaced and sealed in a manner that limits the radiation dose rate at the surface of the engineered barrier to levels that at a minimum will permit the Operator to comply with all provisions of 105 CMR 120.207 at the time of license transferral as provided in 105 CMR 120.800.

(L) Waste shall be handled in a manner to minimize workers exposure to radiation utilizing ALARA (As Low As Reasonably Achievable) techniques.

(M) Waste shall be emplaced to ensure retrievability and the ability to monitor through the end of the institutional control period.

120.842: continued

(N) Following receipt and acceptance of a shipment of waste, the Operator shall record the date of any emplacement of the waste, the waste's location in the facility, the condition of the waste containers as received, any remedial measures taken pursuant to 105 CMR 120.842(E), any discrepancies between materials listed on the manifest and those received, and any evidence of leaking or damaged containers or radiation or contamination levels in excess of limits specified in the regulations of the U.S. Department of Transportation (49 CFR 173.441 and 173.443, revised as of November 1, 1984, as amended) and the Department. The Operator shall briefly describe any repackaging operations of any of the waste containers included in the shipment, plus any other information required by the Department as a license condition.

(O) Facility operations shall not have an adverse effect on the implementation of closure plan measures.

(P) Only wastes containing or contaminated with radioactive material shall be accepted at the facility.

(Q) Waste received at a disposal facility shall not be intentionally diluted by the Operator to alter its classification as identified on the manifest.

120.843: Facility Boundaries and Markers

(A) The boundaries and locations of any disposal unit shall be accurately located, adequately marked, and mapped.

(B) A buffer zone of land shall be maintained between the waste management area and the facility boundary. The buffer zone shall be of adequate dimensions to carry out environmental monitoring activities specified in 105 CMR 120.831 and satisfy the requirements of 310 CMR 41.27(b).

120.844: Contingency Plans for Facility Operations

(A) The Operator shall have contingency plans for unplanned occurrences, such as fires, accidents, radiological contaminations or releases of radioactivity into the environment, severe natural events, and any operational repair and waste recovery activities that may adversely affect the health and safety of the facility workers or general public. Any retrieval of waste pursuant to such contingency plans shall conform to the terms approved in the license.

(B) The plans shall identify the necessary minimal training, management, procedures, equipment, communications and notification systems, and human resources needed and required to provide emergency response to unplanned occurrences.

(C) The Operator shall include in the license application:

- (1) Signed agreements with necessary emergency units that will respond to the requests from the Operator.
- (2) A demonstration of adequate emergency response capability as deemed appropriate by the Department.

120.845: Facility Maintenance

The Operator shall maintain the facility so as to remain in compliance with all the terms and conditions of the license and 105 CMR 120.000.

120.850: Funding for Facility Closure

(A) The Operator shall provide assurances prior to the commencement of operations, that sufficient funds will be available to carry out facility closure. These assurances shall be based on Department-approved cost estimates reflecting the Department-approved facility closure plan. The Operator's cost estimates must take into account total costs that would be incurred if an independent contractor were hired to perform the closure work. The assurances shall establish that there will be sufficient funds for:

120.850: continued

- (1) Decontamination, stabilization or dismantlement of facility components.
 - (2) Closure of the facility so that following transfer of the facility license to the Board, the need for ongoing active maintenance is minimized to the extent practicable and only minor custodial care, surveillance, and monitoring are required.
- (B) In order to avoid unnecessary duplication and expense, the Department may accept financial sureties that have been consolidated with earmarked financial or surety arrangements established to meet requirements of Federal or other State agencies or local governmental bodies for such closure. The Department may accept these arrangements only if they are considered adequate to satisfy the requirements of 105 CMR 120.800 and that the portion of the surety which covers the closure of the facility is clearly identified and committed for use in accomplishing these activities.
- (C) The Operator's financial or surety arrangement shall be submitted annually for review by the Department to ensure that sufficient funds are available for completion of the closure plan assuming that the work has to be performed by an independent contractor.
- (D) The amount of the Operator's financial or surety arrangement shall change in accordance with changes in the predicted costs of implementing the closure plan. Factors affecting closure cost estimates include, but are not limited to inflation, increases in the amount of disturbed land, changes in engineering plans, and closure that has already been accomplished. The financial or surety arrangements shall be sufficient at all times to cover the costs of closure of any disposal units that are expected to be used before the next license renewal.
- (E) Financial or surety arrangements shall be written for a specified period of time and provide for automatic renewal unless the person who issues the surety notifies the Department, the Board, and the Operator not less than 90 days prior to the renewal date of its intention not to renew. In such a situation, the Operator must submit a replacement surety within 30 days after notification of cancellation. If the Operator fails to provide a replacement surety acceptable to the Department, the Board may collect on the original surety.
- (F) Proof of forfeiture shall not be necessary to collect the surety so that, in the event that the Operator cannot provide an acceptable replacement surety within the required time, the surety shall be automatically collected prior to its expiration. The conditions described above shall be clearly stated on any surety instrument which is not open ended, and shall be agreed to by all parties.
- (G) Financial or surety arrangements generally acceptable to the Department include surety bonds, cash deposits, certificates of deposit, deposits of government securities, escrow accounts, irrevocable letters or lines of credit, trust funds, and combinations of the above or such other types of arrangements as may be approved by the Department. Self-insurance, or any arrangement which essentially constitutes pledging the assets of the Operator, will not satisfy the surety requirement.
- (H) The Operator's financial or surety arrangement shall remain in effect until closure has been completed and approved by the Department, and the license has been transferred to the Board.

120.851: Application for Renewal or Closure

An application for renewal or an application for closure must be filed at least one year prior to the date scheduled for facility closure in the facility closure plan. A final closure application shall include a final revision and specific details of the facility closure plan included as part of the license application submitted under 105 CMR 120.824(L) that includes each of the following:

- (A) Any additional geologic, hydrologic, or other data pertinent to the long-term containment of any emplaced wastes obtained during the operational period.

120.851: continued

(B) The results of tests, experiments, or any other analyses relating to treatment, storage or disposal of waste, final closure and sealing, migration of radionuclides and interaction with emplacement media, or any other tests, experiments, or analysis pertinent to the long-term containment of any emplaced waste within the facility.

(C) Any proposed revision of plans for:

- (1) Decontamination, stabilization and/or dismantlement of facility components; or,
- (2) Post-closure observation and maintenance of the facility.

(D) Any significant new information regarding the environmental impact of final closure activities and long-term performance of the facility.

120.852: Procedures for Review of Application for Facility Closure and Closure Plan

(A) The Department shall conduct a public meeting on the final closure plan at times to be determined after consultation with the Board in each site community, and other public meetings in neighboring communities upon request by the chief executive office of such community. The Board shall participate in each such public meeting.

(B) The Department shall accept written comments on the submitted plan from any interested person within 45 days of public notice of the availability of the plan. Prior to its acceptance of the plan, the Department shall consider and evaluate all comments made at a public meeting or submitted in writing.

(C) Upon review and consideration of an application for closure, the Department shall permit closure of the facility if there is assurance that the long-term performance objectives set forth in 105 CMR 120.814 will be met during post closure observation and maintenance and institutional control of the facility.

120.853: Facility Closure

(A) The Operator shall monitor the facility and carry out the closure plan until the facility closure is complete. The Department shall, in cooperation with appropriate officials of each site community, periodically inspect the Operator's implementation of the facility closure plan to ensure that the requirements in 105 CMR 120.800 and the conditions of the facility license are satisfied.

(B) Facility closure shall be conducted so as to ensure the stability of the facility until the facility license is transferred to the Management Board pursuant to 105 CMR 120.870: *Post-closure Observation and Maintenance*.

120.860: Post-closure Observation and Maintenance

The Operator shall observe, monitor, and carry out necessary maintenance and repairs at the facility until a period of five years after the site closure is complete and the license is transferred by the Department in accordance with 105 CMR 120.870. The Operator environmental monitoring program of the facility shall continue as approved by the Department. Responsibility for the facility must be maintained by the Operator for not less than five years. A longer time period for post-closure observation and maintenance may be required as part of the site closure plan, based on facility-specific conditions.

120.870: Transfer of License

Following the period of post-closure observation and maintenance, the Operator may apply to transfer the facility license to the Board. The license shall be transferred under M.G.L. c. 111H, § 46 if the Department finds:

(A) That the closure of the facility has been completed in conformance with the Operator's facility closure plan, as amended and approved as part of the license;

120.870: continued

- (B) That the performance objectives set forth in 105 CMR 120.811 through 120.814 are met;
- (C) That all records of the Operator's development, operation, closure and post-closure observations and maintenance of the facility have been transferred to the Board in compliance with M.G.L. c. 111H, § 44, and that the Board has certified the adequacy of the amount contained in the institutional control account of the Low-level Radioactive Waste Trust Fund to pay the costs of institutional control of the facility pursuant to M.G.L. c.111H, §§ 9 and 47;
- (D) That the Board has adopted a plan for institutional control of the facility and to accept transfer of the license, and is prepared to continue the Operator environmental monitoring program; and
- (E) That the Management Board is prepared to assume responsibility for and satisfy the institutional requirements as set forth in 105 CMR 120.800.

120.871: Institutional Control

The Board shall conduct an institutional control program which shall physically control access to the facility following transfer of control of the facility from the facility Operator. The institutional control program shall also include, but not be limited to, continuing the Operator environmental monitoring, periodic surveillance, minor custodial care, and other requirements as determined by the Department; and administration of funds to cover the costs for these activities. The period of institutional controls shall be determined by the Department and shall satisfy the requirements set forth in 105 CMR 120.816.

120.880: Maintenance of Records, Reports, and Transfers

- (A) The Operator shall maintain any records and make any reports in connection with the licensed activities as are required by the conditions of the license or by 105 CMR 120.800 or any order of the Department.
- (B) Records required by 105 CMR 120.800 or by license conditions shall be maintained for a period specified by 105 CMR 120.800 or by license condition. If a retention period is not otherwise specified, these records shall be maintained and transferred to the Board as a condition of license transfer unless the Department authorizes their disposition because of inaccuracies or obsolescence or that disposing of such records will not adversely affect the public health and safety of the general public and the environment.
- (C) Records which are required to be maintained pursuant to 105 CMR 120.800 may be the original or a reproduced copy or microfilm if this reproduced copy or microfilm is capable of producing copy that is clear and legible at the end of the required retention period. The record may also be stored in electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Records such as letters, drawings, specifications, must include all pertinent information such as stamps, initials, and signatures. The licensee shall maintain adequate safeguards against tampering with and loss of records.
- (D) Copies of all records of the location and the quantity of wastes contained in the facility shall be transferred to the Board upon license transfer to the Board.
- (E) Following receipt and acceptance of a shipment of radioactive waste, the licensee shall record the date that the shipment is received at the disposal facility, the date of disposal of the waste, a traceable shipment manifest number, a description of any engineered barrier or structural overpack provided for disposal of the waste, the location of disposal at the disposal site, the containment integrity of the waste disposal containers as received, any discrepancies between materials listed on the manifest and those received, the volume of any pallets, bracing, or other shipping or onsite generated materials that are contaminated, and are disposed of as contaminated or suspect materials, and any evidence of leaking or damaged disposal containers or radiation or contamination levels in excess of limits specified in Department of Transportation and Agency regulations. The licensee shall briefly describe any repackaging operations of any of the disposal containers included in the shipment, plus any other information required by the Agency as a license condition. The licensee shall retain these records until the Agency transfers or terminates the license that authorizes the activities described in 105 CMR 120.800.

120.880: continued

(F) Annual reports:

- (1) The Operator shall submit an annual report to the Department by the end of the first calendar quarter of each year for the preceding year.
- (2) The annual reports shall include:
 - (a) A copy of the Operator's financial report or a certified financial statement,
 - (b) Specification of the quantity of each of the principal contaminants released to unrestricted areas in liquid and in airborne effluents during the preceding year,
 - (c) The data of the Operator environmental monitoring program,
 - (d) A summary of any disposal unit surveys and maintenance activities,
 - (e) A summary, by waste class, of activities and quantities of any radionuclides disposed of,
 - (f) Any instances in which observed site characteristics were significantly different from those described in the application for a license; and,
 - (g) Any other information the Department may require.
- (3) The report shall identify and discuss any instance, during the reporting period, in which monitoring results, maintenance performed or the quantities of waste released are significantly different from those expected.

(G) The Operator shall comply with the recordkeeping requirements of 105 CMR 120.001.

(H) Any transfer of byproduct, source, and special nuclear materials by the Operator is subject to the requirements in 105 CMR 120.140.

(I) In addition to the other requirements of 105 CMR 120.880, the licensee shall store, or have stored, manifest and other information pertaining to receipt and disposal of radioactive waste in an electronic recordkeeping system.

- (1) The manifest information that must be electronically stored is:
 - (a) That required in 10 CFR part 20, Appendix G, with the exception of shipper and carrier telephone numbers and shipper and consignee certifications; and,
 - (b) That information required 105 CMR 120.880(E).
- (2) As specified in facility license conditions, the licensee shall report the stored information, or subsets of this information, on a computer-readable medium.

120.881: Tests on Facilities

Each Operator shall perform, or permit the Department to perform, any tests the Department deems appropriate or necessary for the administration of 105 CMR 120.800, including, but not limited to, tests of:

- (A) Wastes and facility components used for the receipt, storage, treatment, handling or disposal of wastes;
- (B) Radiation detection and monitoring instruments; or,
- (C) Other equipment and devices used in connection with the receipt, possession, handling, treatment, storage, or disposal of waste.

120.882: Department Inspection of Facilities

(A) Each Operator shall annually, and at such other times as requested by the Department, provide detailed and accurate information, in a report, for the purpose of determining compliance with 105 CMR 120.800, including, but not limited to:

- (1) The type, volume, radioactivity, source and characteristics of the waste treated, stored, or disposed of at the facility;
- (2) The Operator's current and projected waste management activities, including source minimization, volume minimization, on-site storage, treatment, packaging and transportation practices.

120.882: continued

(B) The Operator shall allow the duly authorized representatives of the Department, at all reasonable times, without advance notice to enter and examine any property, facility, or activity involving treatment, storage, and disposal of the waste. The Operator shall afford such inspectors unfettered access, equivalent to access provided to persons regularly employed at the facility, following proper identification and compliance with applicable access control measures for security, radiological protection and personal safety. Such inspectors are authorized to make such inspections, conduct such test, reviews, studies, monitoring, or sampling or examine books, paper and records as the Department deems necessary for administration or enforcement of M.G.L. c. 111H or 105 CMR 120.800. Such inspectors may copy and take away copies of, for the Agency's use, any record required to be kept pursuant to 105 CMR 120.800.

(C) An annual summary of the Department's inspection and enforcement activities with respect to the facility shall be transmitted to the Board and to the board of health of each site community.

120.885: Waivers

The Department may waive the application of any provision of 105 CMR 120.800 if it finds that:

(A) The performance objectives set forth in 105 CMR 120.811 through 120.814 will be met; and,

(B) Public health, safety and the environment will be protected; and,

(C) Strict application of the section to be waived would undermine the public interest; and,

(D) Specific substitute requirements can be adopted which will result in the substantial protection of the process established in M.G.L. c. 111, §§ 3, 5M, 5N, 5O, and 5P and the rights of persons affected by the action and the Operator; and,

(E) The action made possible by the waiver will not violate the provisions of M.G.L. c. 111H or any other state or federal law.